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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,167	07/09/2003	Shigeru Muramatsu	2552-000050	1106
27572	7590	09/22/2006	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			WARREN, DAVID S	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/616,167

Applicant(s)

MURAMATSU ET AL.

Examiner

David S. Warren

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/27/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

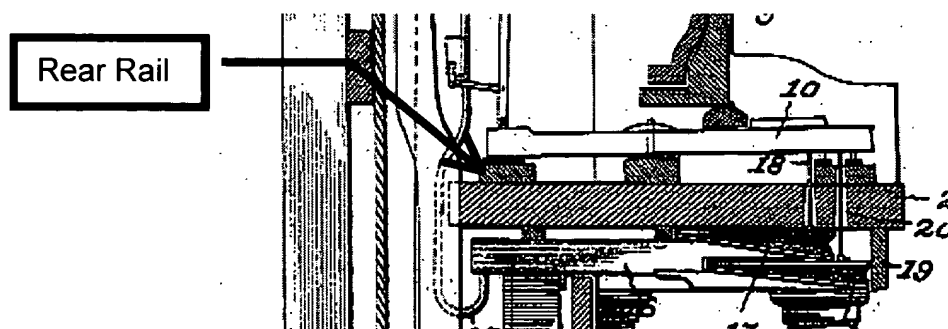
Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 - 4, 9, 14, 19, and 20 rejected under 35 U.S.C. 102(b) as being anticipated by Rodesch (848,207). Regarding claims 1, 14, and 20, Rodesch discloses the use of a keyboard musical instrument including a case (shown as several element numbers in fig. 1; e.g., see elements 1, 4 – 6, 9, and 16) having a bottom board (2), the bottom board has a first portion and a second portion of equal thickness, wherein the second portion is formed with plural holes (20; page 2, first column, lines 39 – 41), a tone generating mechanism (page 2, col. 1, lines 18 – 22), plural keys (10) depressed and released to produce tones, a rear rail (unnumbered, but shown in fig. 1) over the first portion for receiving end portions of the keys.



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Further, Rodesch shows an automatic playing system (see Title), including plural actuators (18) passing through the plural holes, a holder (16) for holding the actuators, converters for converting energy (in this case pneumatic pressure to mechanical displacement), and a controller (fig. 2 shows a conventional player piano control, i.e., the tracker-board) to selectively drive the plungers to actuate the tone generating mechanism. Regarding claims 2, 3, and 19, the holes are larger than the plungers and smaller than the converter (fig. 1), otherwise the plungers would not fit through the holes rendering the apparatus inoperable. Regarding claim 4, elements 18 of fig. 1 do not appear in a straight line (i.e., they are staggered). Regarding claim 9, Rodesch describes an upright piano (fig. 1), thus plural keys, plural action units, strings, and plural hammers are part of the Rodesch invention.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6 – 8, 10 - 13, and 15 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodesch in view of Broadmoore (5,081,893). Regarding claim 6, Rodesch does not disclose a plunger having a resilient head. Broadmoore shows that each plunger has a head (14), while Broadmoore is silent as to the resiliency of 14,

Broadmoore does use element 14 in association with element 13 (felt, i.e., resilient) and element 29 (col. 6, lines 45 – 48 discuss the resilient washer 29). The Examiner maintains that the structure of Broadmoore is functionally equivalent to that of the Applicant. It would have been obvious to one of ordinary skill in the art to combine the teachings of Rodesch and Broadmoore to obtain a key actuator having a resilient head. The motivation for making this combination would be to decrease the likelihood of damaging the key after retro-fitting. Regarding claim 7, Rodesch does not show the use of a stopper. Broadmoore discloses the use of a stopper (24, 25) movable with the hole (32). It would have been obvious to one of ordinary skill in the art to combine the teachings of Rodesch and Broadmoore to obtain a key activating means having a stopper. The motivation for making this combination would be to provide a way to ensure the correct amount of displacement. Regarding claim 8, as defined by Applicant, bushings are shown in Broadmoore (as elements 27 and 30) and are well-known within mechanical piano systems. Regarding claims 10, 11, 16, and 17, Rodesch discloses retro-fitting (page 3, col. 1, third paragraph) an upright piano. Since the system of Rodesch employs the horizontal key bed and the keys (also horizontal), these features could easily be installed in either an upright or grand piano (i.e., the pertinent structure is identical in both the upright and grand pianos). Broadmoore discloses retrofitting either a grand piano or an upright piano (col. 6, lines 41 – 44). Regarding claims 12 and 13, Rodesch does not teach the use of electrical solenoids. Broadmoore shows the use of electrical solenoids (3). It would have been obvious to one of ordinary skill in the art to combine the teachings of Rodesch and Broadmoore to

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obtain a player piano having solenoids. The motivation for making this combination would be to eliminate the functionally equivalent pneumatic system which are known to generate noise and are inefficient. Regarding claims 15 and 18, while Rodesch does not specifically mention "putting marks indicative of boundaries between keys" and "calculating an intermediate point..." these limitations appear to apply to positioning the converters on the piano. Certainly, Rodesch would devise a system to correctly position the solenoids and actuators, otherwise, the Rodesch invention would be inoperable. Therefore, the Examiner deems the limitations of claims 15 and 18 to be functionally equivalent to Rodesch's system for positioning and mounting the actuators.

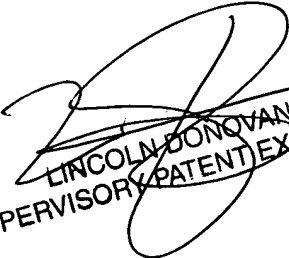
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Warren whose telephone number is 571-272-2076. The examiner can normally be reached on M-F, 9:30 A.M. to 6:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on 571-272-2837. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

dsw


LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER